

JUN 02 2008

U. S. PTO Customer No. 25280

Case #5802

## REMARKS

35 USC Section 103 Rejections:

2. Claims 1 – 5, 8 – 27, 32 and 33 were rejected under 35 USC 103(a) as being unpatentable over Otto (USPN 4,316,928) in view of Nun et al. (US 2003/0013795 A1).

*Examiner's Arguments*

The Examiner maintained the previous rejection with arguments similar to those stated in the previous Office Action (see Office Action dated 8/6/07 and Applicants' Response dated 12/6/07).

However, the Examiner added the following comments, in response to Applicants' arguments.

With regard to field of endeavor, the Examiner states that both inventions (Otto and Nun) are directed to fabrics that have been treated to provide the final product with enhanced properties – Otto being directed to the mechanical surface finishing of textiles and Nun being directed to hydrophobic surface treatment for use on non-rigid articles such as shower curtains and umbrellas [0065].

With regard to motivation to combine, the Examiner cites the holdings of KSR on obviousness and states that this reasoning is not limited to the problem the patentee was trying to solve. The Examiner cites KSR which states, in part, that "any need or problem known in the field of endeavor at the time of invention and addressed by the patent can provide a reasoning for combining the elements in the manner claimed." Thus, the Examiner states that the motivation to modify Otto comes from the secondary reference of Nun; therefore, it would have been obvious at the time the invention was made to a person having ordinary skill in the art to modify the invention of Otto with the coating motivated by creating a self-cleaning hydrophobic fabric as disclosed by Nun.

With regard to expectation of success, the Examiner states that there is no evidence of record and no basis to believe that the polymeric coating and particles of Nun would not adhere to the treated fabric of Otto or that doing so would adversely affect the integral microscopic surface structures.

With regard to consideration of all claim limitations, the Examiner takes the position that the mechanical apparatus used to modify the surface of the textile interacts with said textile at an angle substantially normal to the plane of said textile and this process will provide a resultant product that possesses the claimed projections. There is no evidence to suggest otherwise.

U. S. PTO Customer No. 25280

Case #5602

*Applicants' Arguments*

In order to establish a *prima facie* case of obviousness, MPEP 2143 states that (a) there must be a motivation or suggestion to combine the references, (b) there must be a reasonable expectation of success if the combination is made, and (c) all the claim limitations must be considered. Applicants respectfully submit that (a) – (c) have not been met; and therefore, the instant claims are not obvious in light of the prior art.

Case law supports this statement in that the teaching or suggestion to make the claimed combination and the reasonable expectation of success must both be found in the prior art, not in applicant's disclosure. *In re Vaeck*, 947 F.2d 488, 20 USPQ2d 1438 (Fed. Cir. 1991).<sup>7</sup> Additionally, the mere fact that references can be combined or modified does not render the resultant combination obvious unless the prior art also suggest the desirability of the combination. *In re Mills*, 916 F.2d 860, 16 USPQ2d 1430, 4132 (Fed. Cir. 1990).

Applicants have amended the independent claims to include the limitation that the fiber-containing substrate contains integral microscopic surface structures, as a result of exposing the substrate to a mechanical face-finishing process that utilizes diamond grit having a size of 600 to 1200. In contrast, the Otto reference teaches mechanical face-finishing of textile fabrics via sand grit in the size range of from about 16 to about 600 (col. 8, lines 18-22). See also the Table provided by Otto which illustrates that the grit size used in all the Examples was 240. In contrast, Applicants claim the use of diamond grit in the size range of from about 600 to about 1200. Nun fails to teach mechanical face-finishing. Accordingly, Applicants respectfully submit that the currently amended claims, now reciting this added feature, are not taught or fairly suggested by the combination of Otto in view of Nun.

Additionally, Applicants point out that they are very familiar with the Otto reference, since the patent is assigned to Milliken Research Corporation, which is a wholly owned subsidiary of Milliken & Company. The instant pending application is assigned to Milliken & Company. The Otto process is known to result in a treated textile substrate that contains many broken fibers. Applicants point specifically to Examples 1, 3, 7 and 12 of Otto which provide a description of broken and/or cut fibers after exposure to the Otto process.

Thus, Applicants respectfully assert that this feature of Applicants' claims – that is, "having a plurality of substantially unbroken fibers" – has not been considered by the Examiner, as required by MPEP

U. S. PTO Customer No. 25280

Case #5602

2143. With regard to the Figures of Otto, which the Examiner relies upon to illustrate unbroken fibers, Applicants respectfully submit that they are difficult to view. Applicants cannot determine whether there are broken fibers or unbroken fibers. Thus, Applicants rely on the discussion of the test results provided by Otto in the Examples section. Such discussion clearly discloses the presence of broken fibers (see Examples 1, 3, 7 and 12).

With regard to the teachings of Nun, Applicants recognized the teachings of Nun at the time the instant application was filed. In this regard, Applicants state the following (instant specification page 3, line 23 to page 4, line 12):

There have been a variety of efforts by others to produce such Lotus-like surface structures, such as in US Patent No. 6,068,911 to Shouji et al.; US Patent Application Publication No. 2002/0016433 to Keller et al.; and US Patent Application Publication Nos. 2002/0150723, 2002/0150724, 2002/0150725, 2002/0150726, 2003/0013795, and 2003/0147932 to Creavis Gesellschaft Fuer Techn. Und Innovation MBH. These references disclose means to use particles to build rough structures on primarily smooth flat surfaces. Textile substrates treated according to these references generally do not provide durable repellency because they often lose most or all of their repellency when laundered or when abraded during normal use. Thus, textile substrates that retain advantageous superior liquid repellent properties, after laundering or exposure to abrasion from normal use, would be very desirable and novel. (underlining added)

Thus, Applicants respectfully submit that the Nun reference fails to demonstrate its applicability to complex structured textile substrates having irregular surfaces, and it fails to demonstrate durability of the treatment against laundering and abrasion for textile substrates. In fact, Nun teaches that the treated substrate is "self-regenerating" in that when the treated surface is "ablated by erosion" new particles are exposed to regenerate the self-cleaning surface (abstract). In other words, the treated substrate of Nun is designed to be non-durable!

In light of these teachings by the references, Applicants respectfully submit that the combination of Otto in view of Nun et al. actually teaches away from the instantly claimed invention. The combined teachings provide a mechanically face-finished textile substrate that further contains a chemical treatment that is designed to be worn away (i.e. ablated), in order to maintain hydrophobicity. (Recall that Nun et al. teaches a "self-regenerating" hydrophobic surface which is achieved only by gradual removal of the coating applied to the surface). In contrast to the combined teachings of Otto and Nun, Applicants teach a hydrophobic fabric that is durable to laundering and ablation.

U. S. PTO Customer No. 25280

Case #5602

Additionally, Applicants respectfully continue to disagree with the Examiner's assertion that Otto and Nun et al. are from the same field of endeavor (i.e. treated fabrics) and therefore, the purpose disclosed by Nun et al. would have been recognized in the pertinent art of Otto. Accordingly, Applicants disagree with the Examiner's reasoning in that it would have been obvious at the time the invention was made to a person having ordinary skill in the art to modify the invention of Otto with the coating motivated by creating a self-cleaning, hydrophobic fabric as disclosed by Nun et al.

Applicants respectfully submit that Nun et al. fail to teach treating fiber-containing substrates. The only mention of something remotely close to such substrates is the disclosure of treating umbrellas with the coating of Nun et al. Applicants respectfully assert that such disclosure does not constitute a teaching or suggestion of treating fiber-containing substrates as taught and claimed by Applicants. The Examiner cites the disclosure by Nun of "shower curtains" as evidence of a teaching of a fabric. In response, Applicants respectfully disagree with this assertion and provide evidence submitted herewith ("Exhibit A"; 9 pages) that shower curtains are made from a calendaring process and are comprised of vinyl plastic, rather than of fabric. As such, Applicants respectfully maintain their assertion that Nun fails to teach any fiber-containing materials. Thus, Applicants contend that there is no basis for combining Nun with Otto in rejecting the instant claims.

Additionally, Applicants respectfully submit that there is no motivation, or apparent reason, to combine Otto with Nun. Otto does not teach or suggest the need for any further fabric treatments after the mechanical face-finishing of the fabric. Nun, which fails to teach the treatment of fiber-containing substrates, also fails to teach or suggest mechanical face-finishing treatments for the substrate. As such, what motivation is provided to one having ordinary skill in the art at the time of the invention to combine the particle-containing coating for non-fiber containing substrates as taught by Nun with the mechanical face-finishing treatments for fabrics taught by Otto, when Otto fails to teach the need for any additional fabric treatments? Applicants respectfully submit that there is none.

Furthermore, Applicants respectfully submit that, even if the combination were made, there is no reasonable expectation of success that modifying the substrates taught by Otto with the chemical treatment taught by Nun would result in Applicants' claimed invention. Nun teaches applying the chemical treatment to smooth, rigid and non-rigid surfaces [0064-0065]. The rigid substrates taught by Nun cannot even be treated by the processes of Otto because they cannot be fed through the mechanical apparatus. The flexible substrates, if treated by the processes of Otto, would result in the undesirable removal of the chemical treatment.

U. S. PTO Customer No. 25280

**RECEIVED**  
**CENTRAL FAX CENTER** Case #5602

**JUN 02 2008**

Accordingly, Applicants respectfully submit that the combination of Otto in view of Nun et al. fails to provide a *prima facie* case of obviousness, since (a) there is no motivation or suggestion to combine the references, (b) there is no reasonable expectation of success, even if the combination is made, and (c) all claim limitations have not been considered, as required by MPEP 2143. Applicants further submit that the combination even teaches away from Applicants' invention. Thus, reconsideration and withdrawal of this rejection is earnestly and respectfully requested.

3. Claims 40 – 45 were rejected under 35 USC 103(a) as being unpatentable over Otto (USPN 4,316,928) in view of Nun et al. (US 2003/0013795 A1) as applied to claim 32 and further in view of Morrison et al. (USPN 4,343,853).

*Examiner's Arguments*

The Examiner asserts that the disclosures of Otto and Nun et al. fail to teach the use of at least one additional layer of material. Thus, the Examiner relies upon the teachings of Morrison for a disclosure of a "two-face" fabric comprising a visible face fabric and a backing fabric (col. 2, lines 10-68). The Examiner states that the primary objective of the fabric is to create an article that is anti-microbial even though both fabric faces have not been treated (col. 3, lines 8-17).

Thus, the Examiner submits that since Otto and Morrison are from the same field of endeavor (i.e. treated fabrics), the purpose disclosed by Morrison would have been recognized in the pertinent art of Otto. As such, the Examiner states that it would have been obvious at the time the invention was made to a person having ordinary skill in the art to modify the combined invention of Otto and Nun et al. with the second fabric layer of Morrison motivated by imparting anti-microbial protection to two fabric faces while maintaining the advantages of naturally occurring, untreated fibers in one of the fabrics (Abstract, Morrison).

U. S. PTO Customer No. 25280

Case #5602

*Applicants' Arguments*

In order to establish a *prima facie* case of obviousness, MPEP 2143 states that (a) there must be a motivation or suggestion to combine the references, (b) there must be a reasonable expectation of success if the combination is made, and (c) all the claim limitations must be considered. Applicants respectfully submit that (a) – (c) have not been met; and therefore, the instant claims are not obvious in light of the prior art.

Case law supports this statement in that the teaching or suggestion to make the claimed combination and the reasonable expectation of success must both be found in the prior art, not in applicant's disclosure. *In re Vaeck*, 947 F.2d 488, 20 USPQ2d 1438 (Fed. Cir. 1991)." Additionally, the mere fact that references can be combined or modified does not render the resultant combination obvious unless the prior art also suggest the desirability of the combination. *In re Mills*, 916 F.2d 860, 16 USPQ2d 1430, 4132 (Fed. Cir. 1990).

Applicants respectfully rely on the discussion presented above with regard to the deficiencies of Otto in view of Nun et al. and respectfully assert that the additional teachings provided by Morrison fail to provide for these deficiencies. Morrison teaches a multi-layered fabric having an antimicrobial agent contained therein (Abstract; col. 2, lines 17).

Applicants respectfully submit that the rejection lacks a teaching or suggestion for making the combination suggested by the Examiner. Morrison is directed to antimicrobial fabrics. The instant claims are directed to mechanically face-finished fiber-containing substrates having various combinations of repellent agents, crosslinking agents and particulate components applied thereto. Thus, Applicants respectfully contend that one having ordinary skill in the art would not be motivated to look to the teachings of Morrison (i.e. those of antimicrobial fabrics) for a suggestion to modify the teachings of Otto (mechanical face-finishing; no suggestion of other additives) and Nun (hydrophobic surface treatments) and arrive at the instantly claimed invention.

Accordingly, Applicants respectfully submit that the combination of Otto in view of Nun et al. and further in view of Morrison fails to provide a *prima facie* case of obviousness, since (a) there is no motivation or suggestion to combine the references, (b) there is no reasonable expectation of success, even if the combination is made, and (c) all claim limitations have not been considered, as required by MPEP 2143. Reconsideration and withdrawal of this rejection is earnestly requested.

U. S. PTO Customer No. 25280

**JUN 02 2008 Case #5602**Conclusion:

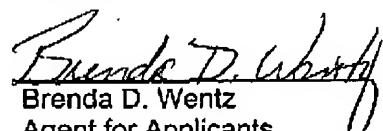
For the reasons set forth above, it is respectfully submitted that claims 1-5, 8-27, 32-33 and 40-45 stand in condition for allowance.

Should any issues remain after consideration of these Remarks and Amendments, the Examiner is invited and encouraged to telephone the undersigned in the hope that any such issue may be promptly and satisfactorily resolved.

In the event that there are additional fees associated with the submission of these papers, authorization is hereby provided to withdraw such fees from Deposit Account No. 04-0500.

Respectfully requested,

June 2, 2008

  
Brenda D. Wentz  
Agent for Applicants  
Registration Number: 48,643  
(864) 503-1597

Milliken & Company  
Legal Department, M-495  
920 Milliken Road  
PO Box 1926  
Spartanburg, SC 29304